

L1 ANSWER 1 OF 5 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN

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DNN N2003-375652 DNC C2003-126346

TI Fuel-tank component for motor vehicles, is molded product containing resin-phase separated structure having polyamide resin as continuous phase and polyphenylene sulfide resin as strip-shaped dispersed phase.

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CYC 1

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NOVELTY - The fuel-tank component, is molded product obtained by injection molding resin composition containing polyamide resin (PR) and polyphenylene sulfide resin (PSR), using metallic mold with ratio of diameter of gate and flow length to final packing fraction of 1:5 or more. Component when viewed by electron microscope has resin-phase separated structure having PR as continuous phase and PSR as strip-shaped dispersed phase.

DETAILED DESCRIPTION - A fuel-tank component, is molded product obtained by injection molding of a resin composition containing 60-95 weight% (wt.%) of polyamide resin and 5-40 wt.% of polyphenylene sulfide resin, using a metallic mold having ratio of diameter of gate and flow length to final packing fraction of 1:5 or more. The component when viewed by electron microscope has resin-phase separated structure having polyamide resin as continuous phase and polyphenylene sulfide resin as strip-shaped dispersed phase.

USE - As cut-off valve cover for motor vehicles.

ADVANTAGE - The fuel-tank components has excellent mechanical strength, toughness, fuel barrier property, moldability and heat welding property.

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ABEX UPTX: 20030716

EXAMPLE - (In weight%) Nylon 6 resin (90) with relative viscosity of 4.3 and polyphenylene sulfide resin (10) with melt flow rate of 3500 g/10 parts at 315degreesC, were mixed with inorganic filler and extruded. The obtained pellet was injection molded using a metallic mold having ratio of diameter of gate and flow length to final packing fraction of 1:12, to form fuel-tank component. The component when viewed by electron microscope had resin-phase separated structure with polyamide resin as continuous phase and polyphenylene sulfide resin as strip-shaped dispersed phase. The fuel-tank component was welded with polyethylene outer layer. A liquid mixture of gasoline and methanol was transferred to the tank and the gasoline barrier property of the component was determined and found to be favorable. The tensile strength of the component was 8.1 MPa as determined by ASTM D638. The component had bending elastic modulus of 2.9 GPa as determined by ASTM D790 and Izod impact resistance of 35 J/m as determined by ASTM D256.

TECH UPTX: 20030716

TECHNOLOGY FOCUS - POLYMERS - Preferred Resin: The polyamide resin consists of nylon 6 with relative viscosity of 3 or more in sulfuric acid, nylon 66 and/or their copolymer. The melt flow rate of polyphenylene sulfide resin measured at 315degreesC by applying a load of 5000 g, is

more than 1500 g/10 parts.

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Apparatus: A polyethylene fuel-tank component (2) is adjoined with fuel-tank component by heat-welding through an adhesive resin (4).